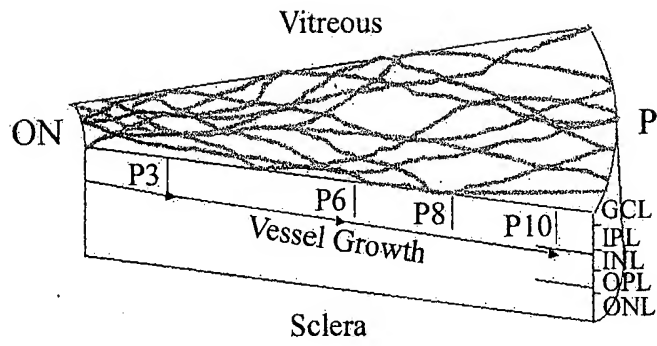


A



B

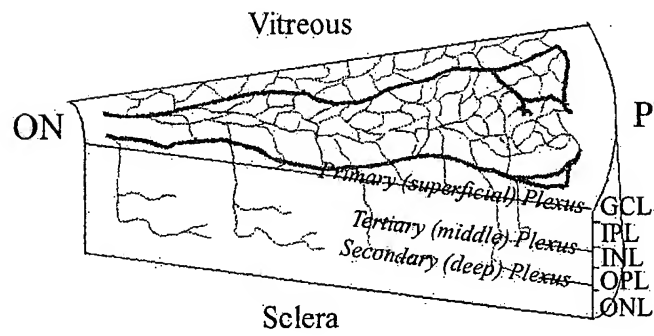
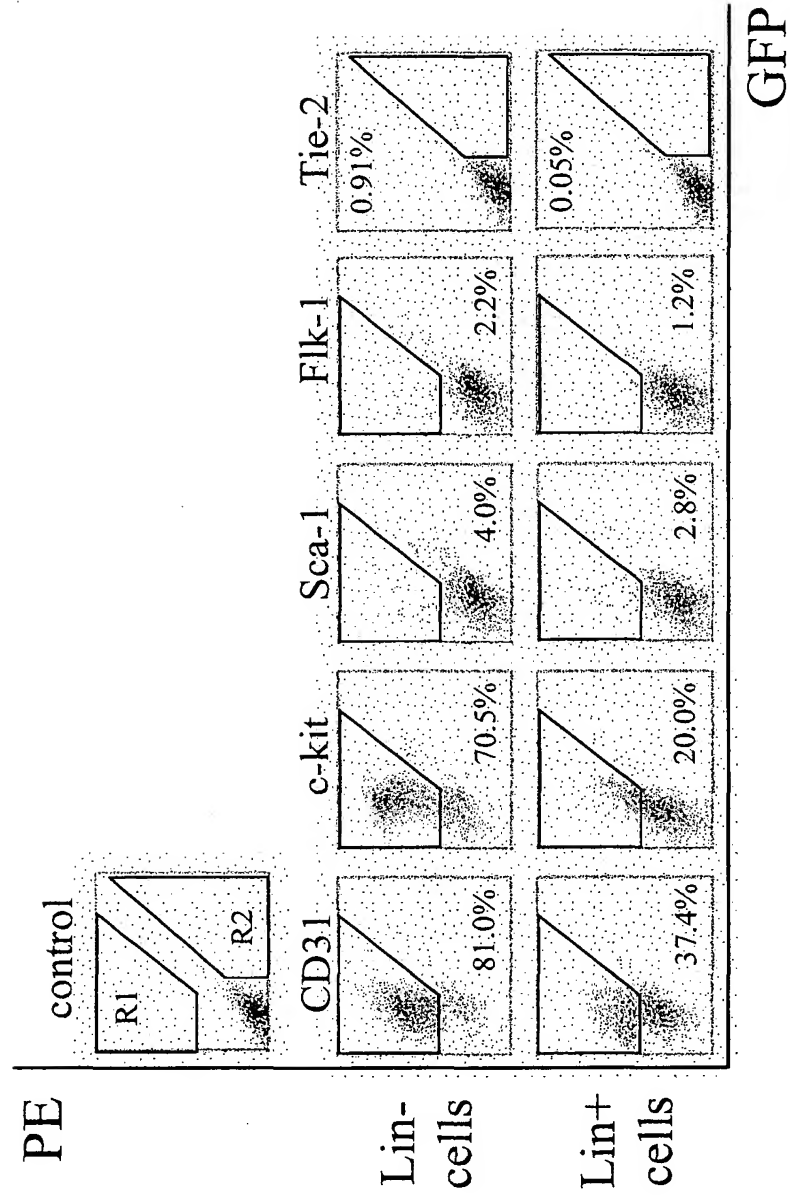


FIG. 1

C



**FIG. 1 Cont.**

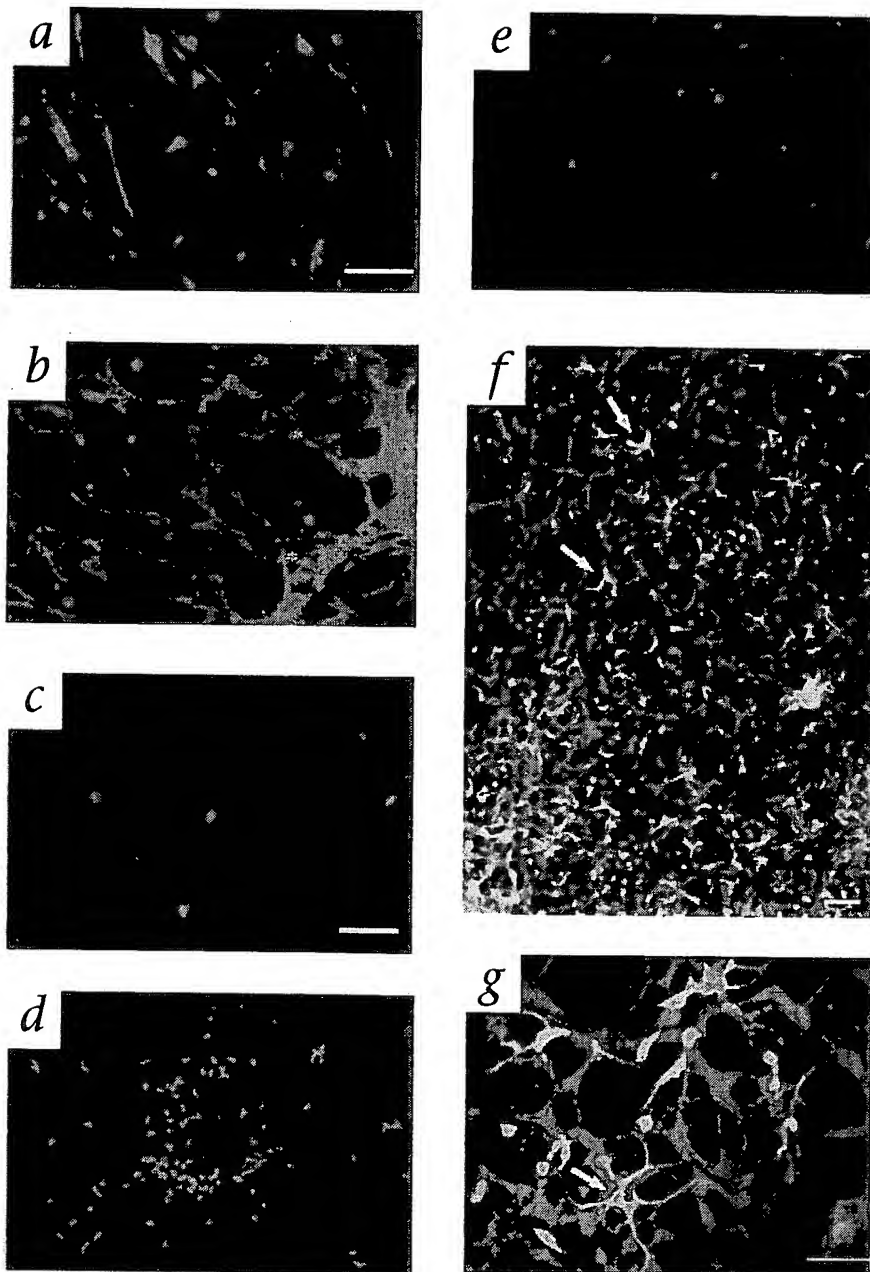


FIG. 2

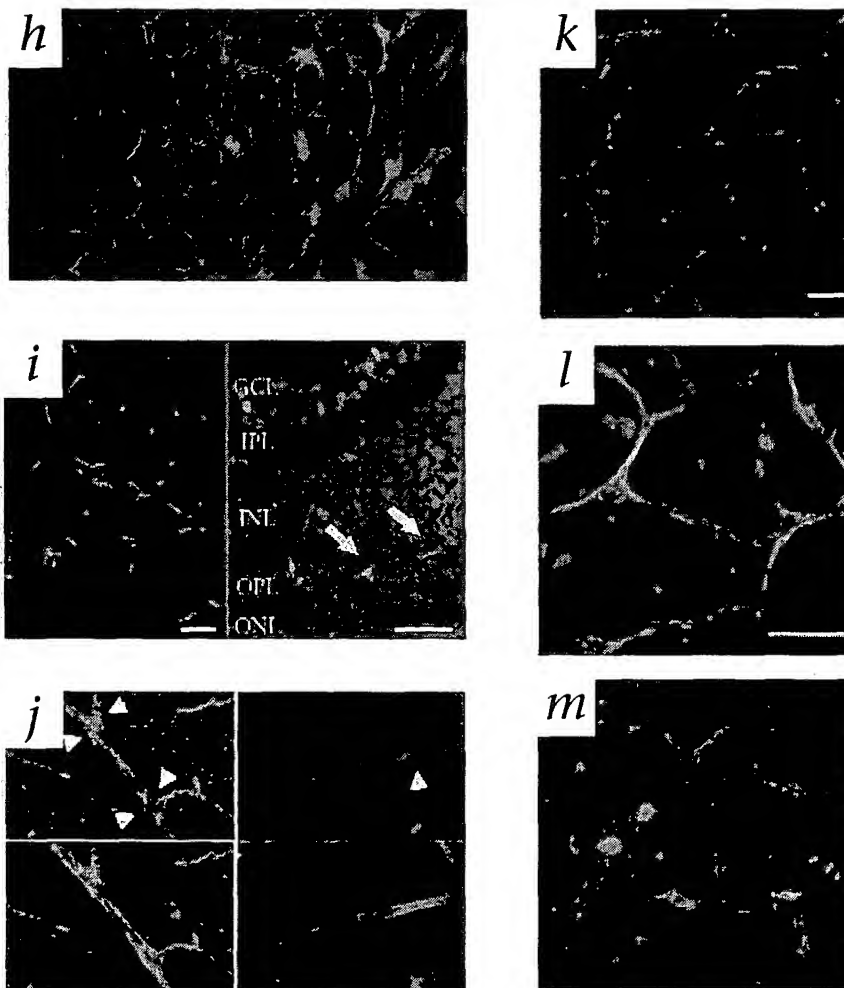
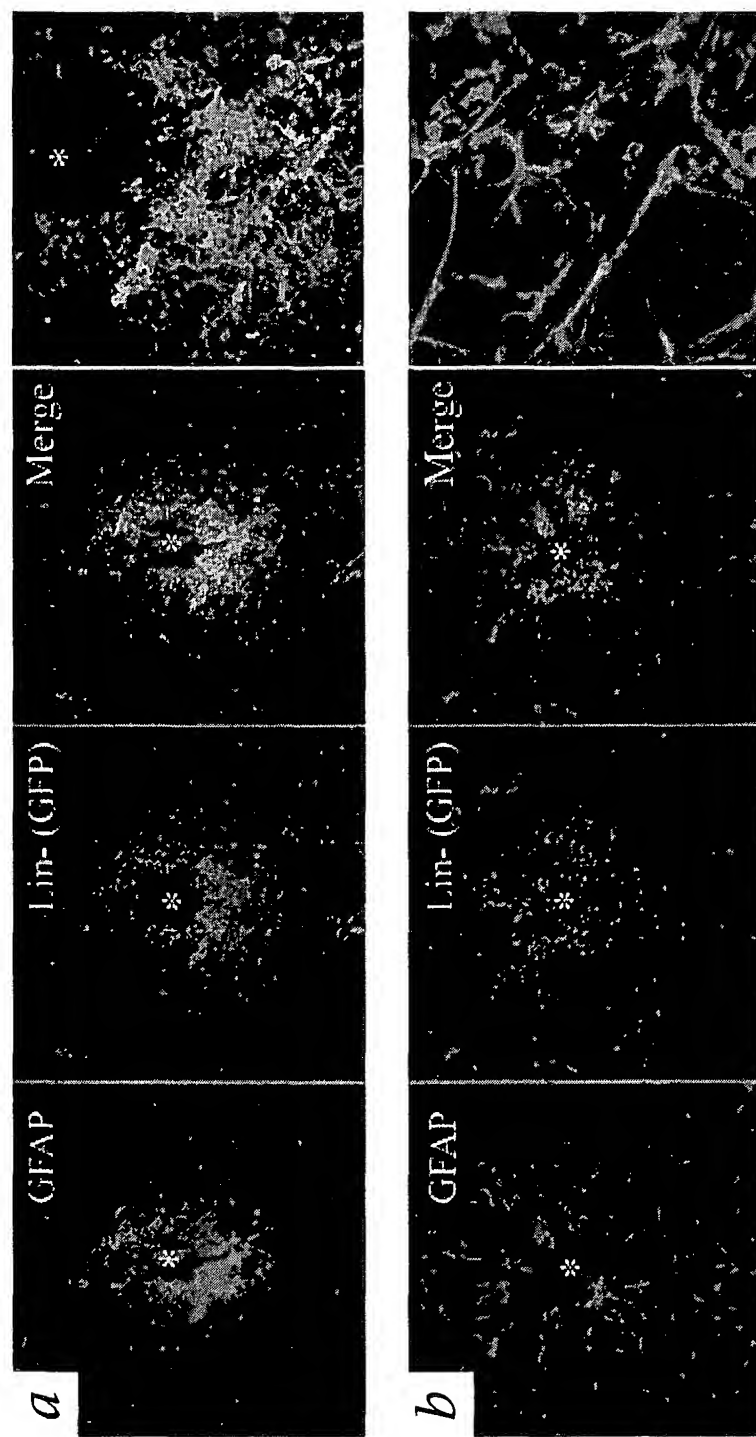
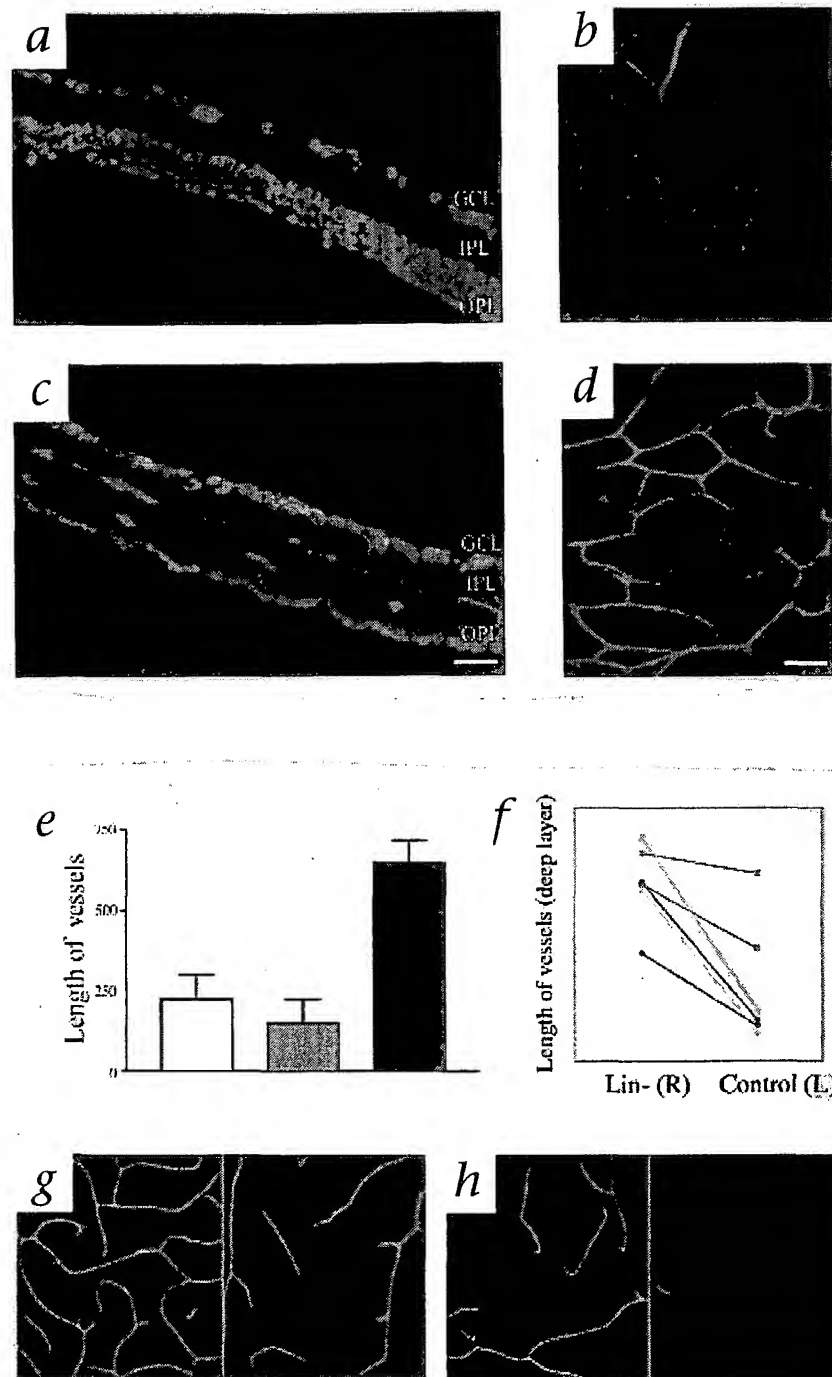
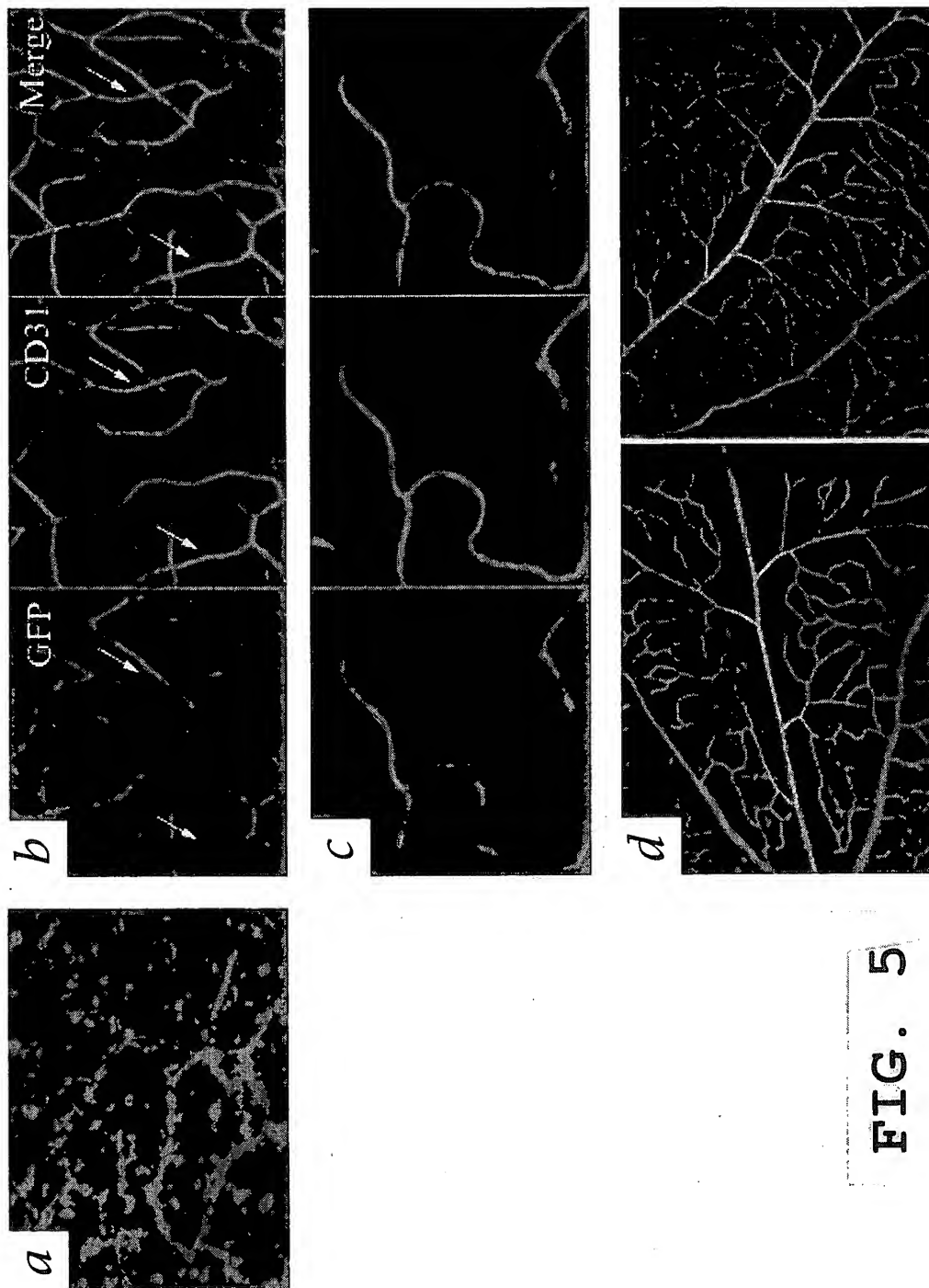


FIG. 2 Cont.



**FIG. 3**





**FIG. 5**

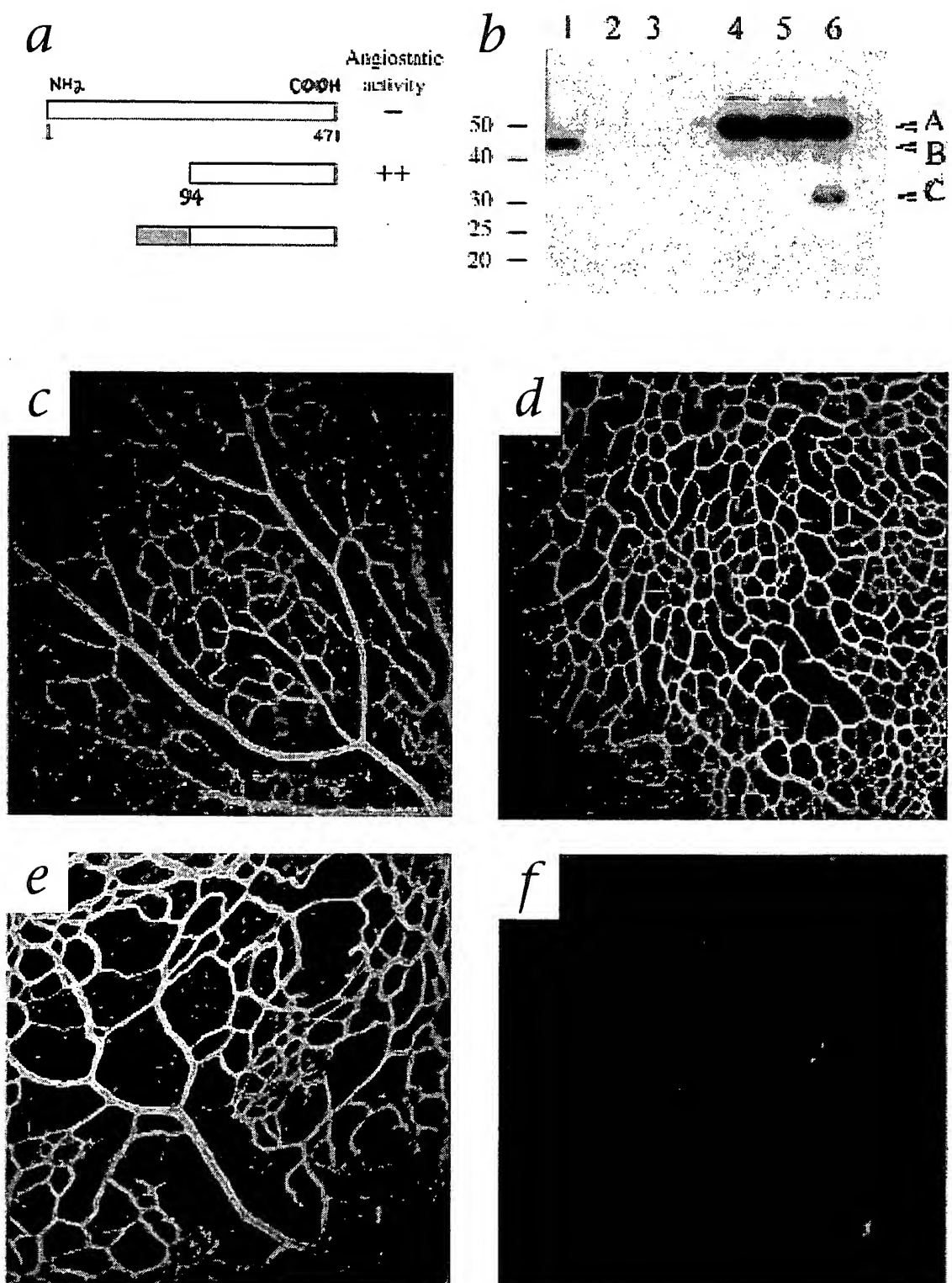


FIG. 6



DNA encoding His-tagged T2 fragment of human TrpRS

tggcgaatgg	gacgcgcctt	gtagcggcgc	attaagcgcg	gcgggtgtgg	tggttacgcg	60
cagcgtgacc	gctacacttg	ccagcgcctt	agcgcgcgct	cctttcgctt	tcttcccttc	120
ctttctcgcc	acgttcgcgc	gctttccccg	tcaagctcta	aatcgggggc	tcccttttagg	180
gttccgattt	agtgttttac	ggcacctcga	ccccaaaaaa	cttgatttagg	gtgatgggtc	240
acgtagtggg	ccatcgccct	gatagacggg	ttttcgccct	ttgacgttgg	agtccacggt	300
ctttaatagt	ggactcctgt	tccaaactgg	aacaacactc	aaccctatct	cggtctattc	360
ttttgattta	taagggattt	tgccgatttc	ggcctatttg	ttaaaaaatg	agctgattta	420
acaaaaattt	aacgcgaatt	ttaacaaaaa	attaacgttt	acaatttcag	gtggcacttt	480
tccgggaaat	gtgcgcggaa	cccctatttg	tttatttttc	taaatacatt	caaatatgta	540
tccgctcatg	agacaataac	cctgataaat	gcttcaataa	tattgaaaaa	ggaagagtat	600
gagtattcaa	catttccgtg	tgcgccctat	tccctttttt	gcggcatttt	gccttcctgt	660
ttttgctcac	ccagaaacgc	tggtgaaagt	aaaagatgct	gaagatcagt	tggtgtgcacg	720
agtgggttac	atcgaactgg	atctcaacag	cggttaagatc	cttgagagtt	ttcgccccga	780
agaacgtttt	ccaatgatga	gcacttttaa	agttctgcta	tgtggcgcgg	tattatcccg	840
tattgacgcc	gggcaagagc	aactcgggtc	ccgcatacac	tattctcaga	atgacttggt	900
tgagtactca	ccagtcacag	aaaagcatct	tacggatggc	atgacagtaa	gagaattatg	960
cagtgtgcc	ataaccatga	gtgataacac	tgccggccaac	ttacttctga	caacgatcgg	1020
aggaccgaag	gagctaaccg	cttttttgca	caacatgggg	gatcatgtaa	ctcgccttga	1080
tcggtgggaa	ccggagctga	atgaagccat	accaaaccgac	gagcgtgaca	ccacgatgcc	1140
tgcagcaaatg	gcaacaacgt	tgcgcaaaact	attaactggc	gaactactta	ctctagcttc	1200
ccggcaacaa	ttaatagact	ggatggaggc	ggataaagtt	gcaggaccac	ttctgcgctc	1260
ggcccttcgc	gctggctggg	ttattgctga	taaatctgga	gccggtgagc	gtgggtctcg	1320
cggatcatt	gcagcactgg	ggccagatgg	taagccctcc	cgtatcgtag	ttatctacac	1380
gacggggagt	caggcaacta	tggtgaacg	aaatagacag	atcgttgaga	taggtgcctc	1440
actgattaag	catttgtaac	tgtcagacca	agtttactca	tatatacttt	agattgattt	1500
aaaacttcat	ttttaattta	aaaggatcta	ggtgaagatc	ctttttgata	atctcatgac	1560
caaaatccct	taacgtgagt	tttcgttcca	ctgagcgtca	gaccccgtag	aaaagatcaa	1620
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accgctacca	gcgggtggtt	gtttgcggga	tcaagagcta	ccaactcttt	ttccgaaggt	1740
aactggcttc	agcagagcgc	agataccaaa	tactgtcctt	ctagtgtagc	cgtagtttagg	1800
ccaccacttc	aagaactctg	tagcaccgcc	tacatacctc	gctctgctaa	tcctgttacc	1860
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accggataag	gcgcagcggg	cgggctgaac	gggggggttc	tgcacacagc	ccagcttgga	1980
gcgaacgacc	tacaccgaac	tgagatacct	acagcgtgag	ctatgagaaa	gcgccacgct	2040
tcccgaaggg	agaaaggcgg	acaggtatcc	ggtaagcggc	agggtcggaa	caggagagcg	2100
cacgagggag	cttccagggg	gaaacgcctg	gtatctttat	agtcctgtcg	ggtttcgcca	2160
cctctgactt	gagcgtcgat	ttttgtgatg	ctcgctcagg	gggcggagcc	tatggaaaaa	2220
cgccagcaac	gcggcctttt	tacggttcct	ggccttttgc	tggccttttg	ctcacatggt	2280
ctttcctgcg	ttatcccttg	attctgtgga	taaccgtatt	accgcctttg	agtgagctga	2340
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gcgcctgatg	cggtattttc	tccttacgca	tctgtgcggg	atttcacacc	gcatatatgg	2460
tgcactctca	gtacaatctg	ctctgatgcc	gcatagttaa	gccagtatac	actccgctat	2520
cgctacgtga	ctgggtcatg	gctgcgcccc	gacaccgcgc	aacaccgcgt	gacgcgcctt	2580
gacgggcttg	tctgctcccg	gcctccgctt	acagacaagc	tgtgaccgtc	tccgggagct	2640
gcatgtgtca	gaggttttca	cgtcatcac	cgaaacgcgc	gaggcagctg	cggtaaagct	2700
catcagcgtg	gtcgtgaagc	gattcacaga	tgtctgcctg	ttcatccgcg	tccagctcgt	2760
tgagtttctc	cagaagcgtt	aatgtctggc	ttctgataaa	gcggggccatg	ttaagggcgg	2820
ttttttcctg	tttggtcact	gatgcctccg	tgtaaagggg	atttctgttc	atgggggtaa	2880
tgataccgat	gaaacgagag	aggatgctca	cgatacgggt	tactgatgat	gaacatgccc	2940
ggttactgga	acgttgtgag	ggtaaacaa	tgccgggtatg	gatgcggcgg	gaccagagaa	3000
aaatcactca	gggtcaatgc	cagcgtcttc	ttaatacaga	tgtaggtggt	ccacagggtta	3060
gccagcagca	tcctgcgatg	cagatccgga	acataatggt	gcagggcgct	gacttccgcg	3120
tttccagact	ttacgaaaca	cggaaaccga	agaccattca	tgttggttgc	caggtcgcag	3180
acgttttgca	gcagcagtcg	cttcacgttc	gctcgcgtat	cggtgattca	ttctgctaac	3240
cagtaaggca	accccgccag	cctagccggg	tcctcaacga	caggagcacg	atcatgcgca	3300

FIG. 7

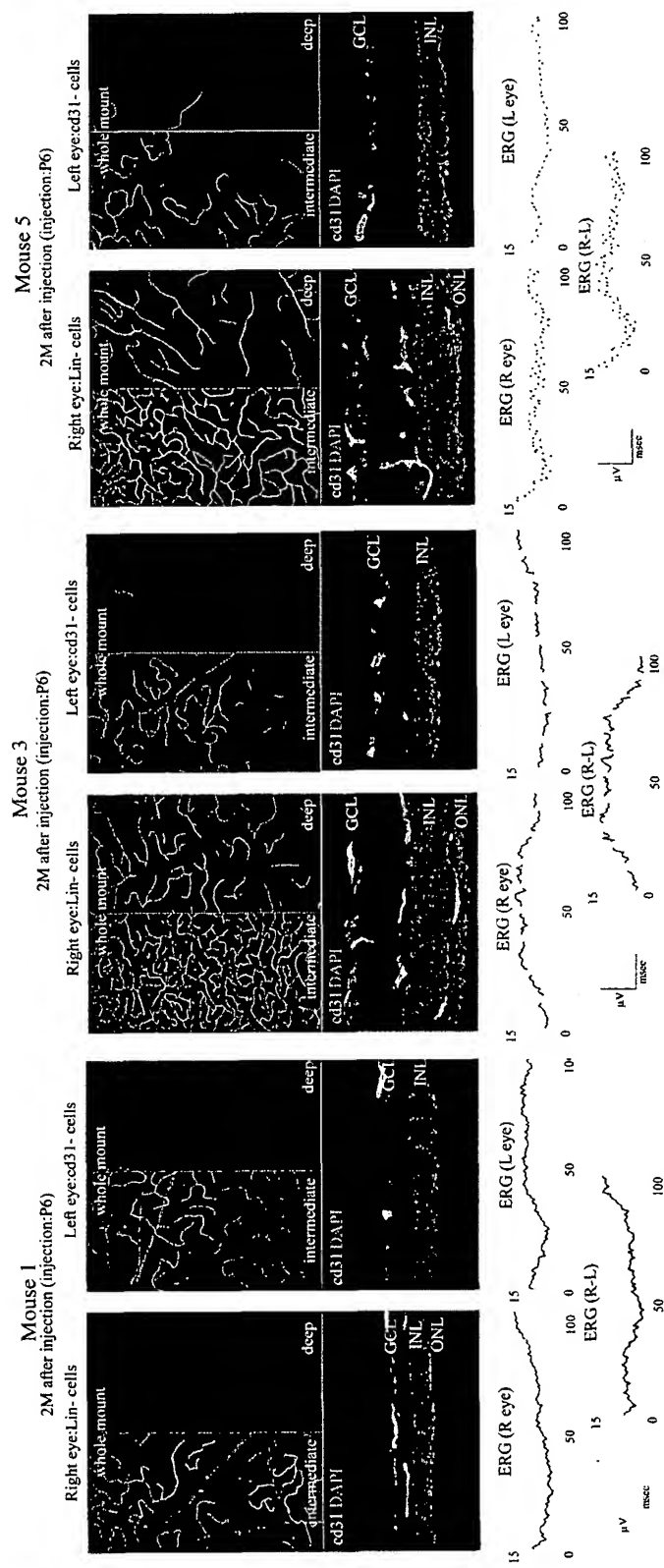
cccgtggcca ggacccaacg ctgcccgaga tctcgatccc gcgaaattaa tacgactcac 3360  
 tatagggaga ccacaacggt ttccctctag aaataatttt gtttaacttt aagaaggaga 3420  
 tatacat atg agt gca aaa ggc ata gac tac gat aag ctc att gtt cgg 3469  
 ttt gga agt agt aaa att gac aaa gag cta ata aac cga ata gag aga 3517  
 gcc acc ggc caa aga cca cac cac ttc ctg cgc aga ggc atc ttc ttc 3565  
 tca cac aga gat atg aat cag gtt ctt gat gcc tat gaa aat aag aag 3613  
 cca ttt tat ctg tac acg ggc cgg ggc ccc tct tct gaa gca atg cat 3661  
 gta ggt cac ctc att cca ttt att ttc aca aag tgg ctc cag gat gta 3709  
 ttt aac gtg ccc ttg gtc atc cag atg acg gat gac gag aag tat ctg 3757  
 tgg aag gac ctg acc ctg gac cag gcc tat ggc gat gct gtt gag aat 3805  
 gcc aag gac atc atc gcc tgt ggc ttt gac atc aac aag act ttc ata 3853  
 ttc tct gac ctg gac tac atg ggg atg agc tca ggt ttc tac aaa aat 3901  
 gtg gtg aag att caa aag cat gtt acc ttc aac caa gtg aaa ggc att 3949  
 ttc ggc ttc act gac agc gac tgc att ggg aag atc agt ttt cct gcc 3997  
 atc cag gct gct ccc tcc ttc agc aac tca ttc cca cag atc ttc cga 4045  
 gac agg acg gat atc cag tgc ctt atc cca tgt gcc att gac cag gat 4093  
 cct tac ttt aga atg aca agg gac gtc gcc ccc agg atc ggc tat cct 4141  
 aaa cca gcc ctg ttg cac tcc acc ttc ttc cca gcc ctg cag ggc gcc 4189  
 cag acc aaa atg agt gcc agc gac cca aac tcc tcc atc ttc ctc acc 4237  
 gac acg gcc aag cag atc aaa acc aag gtc aat aag cat gcg ttt tct 4285  
 gga ggg aga gac acc atc gag gag cac agg cag ttt ggg ggc aac tgt 4333  
 gat gtg gac gtg tct ttc atg tac ctg acc ttc ttc ctc gag gac gac 4381  
 gac aag ctc gag cag atc agg aag gat tac acc agc gga gcc atg ctc 4429  
 acc ggt gag ctc aag aag gca ctc ata gag gtt ctg cag ccc ttg atc 4477  
 gca gag cac cag gcc cgg cgc aag gag gtc acg gat gag ata gtg aaa 4525  
 gag ttc atg act ccc cgg aag ctg tcc ttc gac ttt cag aag ctt gcg 4573  
 gcc gca ctc gag cac cac cac cac cac tgagatccgg ctgctaacaa 4623  
 agccccgaaag gaagctgagt tggctgctgc caccgctgag caataactag cataacccct 4683  
 tggggcctct aaacgggtct tgaggggttt tttgctgaaa ggaggaacta tatccggat 4742

**FIG. 7 Cont.**

# His-tagged T2 fragment of human TrpRS

Met	Ser	Ala	Lys	Gly	Ile	Asp	Tyr	Asp	Lys	Leu	Ile	Val	Arg	Phe	Gly	1	5	10	15
Ser	Ser	Lys	Ile	Asp	Lys	Glu	Leu	Ile	Asn	Arg	Ile	Glu	Arg	Ala	Thr	20	25	30	
Gly	Gln	Arg	Pro	His	His	Phe	Leu	Arg	Arg	Gly	Ile	Phe	Phe	Ser	His	35	40	45	
Arg	Asp	Met	Asn	Gln	Val	Leu	Asp	Ala	Tyr	Glu	Asn	Lys	Lys	Pro	Phe	50	55	60	
Tyr	Leu	Tyr	Thr	Gly	Arg	Gly	Pro	Ser	Ser	Glu	Ala	Met	His	Val	Gly	65	70	75	80
His	Leu	Ile	Pro	Phe	Ile	Phe	Thr	Lys	Trp	Leu	Gln	Asp	Val	Phe	Asn	85	90	95	
Val	Pro	Leu	Val	Ile	Gln	Met	Thr	Asp	Asp	Glu	Lys	Tyr	Leu	Trp	Lys	100	105	110	
Asp	Leu	Thr	Leu	Asp	Gln	Ala	Tyr	Gly	Asp	Ala	Val	Glu	Asn	Ala	Lys	115	120	125	
Asp	Ile	Ile	Ala	Cys	Gly	Phe	Asp	Ile	Asn	Lys	Thr	Phe	Ile	Phe	Ser	130	135	140	
Asp	Leu	Asp	Tyr	Met	Gly	Met	Ser	Ser	Gly	Phe	Tyr	Lys	Asn	Val	Val	145	150	155	160
Lys	Ile	Gln	Lys	His	Val	Thr	Phe	Asn	Gln	Val	Lys	Gly	Ile	Phe	Gly	165	170	175	
Phe	Thr	Asp	Ser	Asp	Cys	Ile	Gly	Lys	Ile	Ser	Phe	Pro	Ala	Ile	Gln	180	185	190	
Ala	Ala	Pro	Ser	Phe	Ser	Asn	Ser	Phe	Pro	Gln	Ile	Phe	Arg	Asp	Arg	195	200	205	
Thr	Asp	Ile	Gln	Cys	Leu	Ile	Pro	Cys	Ala	Ile	Asp	Gln	Asp	Pro	Tyr	210	215	220	
Phe	Arg	Met	Thr	Arg	Asp	Val	Ala	Pro	Arg	Ile	Gly	Tyr	Pro	Lys	Pro	225	230	235	240
Ala	Leu	Leu	His	Ser	Thr	Phe	Phe	Pro	Ala	Leu	Gln	Gly	Ala	Gln	Thr	245	250	255	
Lys	Met	Ser	Ala	Ser	Asp	Pro	Asn	Ser	Ser	Ile	Phe	Leu	Thr	Asp	Thr	260	265	270	
Ala	Lys	Gln	Ile	Lys	Thr	Lys	Val	Asn	Lys	His	Ala	Phe	Ser	Gly	Gly	275	280	285	
Arg	Asp	Thr	Ile	Glu	Glu	His	Arg	Gln	Phe	Gly	Gly	Asn	Cys	Asp	Val	290	295	300	
Asp	Val	Ser	Phe	Met	Tyr	Leu	Thr	Phe	Phe	Leu	Glu	Asp	Asp	Asp	Lys	305	310	315	320
Leu	Glu	Gln	Ile	Arg	Lys	Asp	Tyr	Thr	Ser	Gly	Ala	Met	Leu	Thr	Gly	325	330	335	
Glu	Leu	Lys	Lys	Ala	Leu	Ile	Glu	Val	Leu	Gln	Pro	Leu	Ile	Ala	Glu	340	345	350	
His	Gln	Ala	Arg	Arg	Lys	Glu	Val	Thr	Asp	Glu	Ile	Val	Lys	Glu	Phe	355	360	365	
Met	Thr	Pro	Arg	Lys	Leu	Ser	Phe	Asp	Phe	Gln	Lys	Leu	Ala	Ala	Ala	370	375	380	
Leu	Glu	His	His	His	His	His	His									385	390		

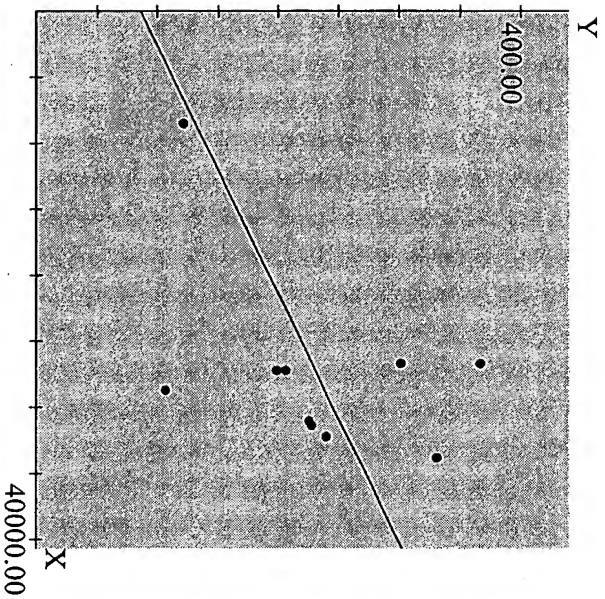
FIG. 8



**FIG. 9**

# Simple Regression Analysis -2M

ONL Nucleus



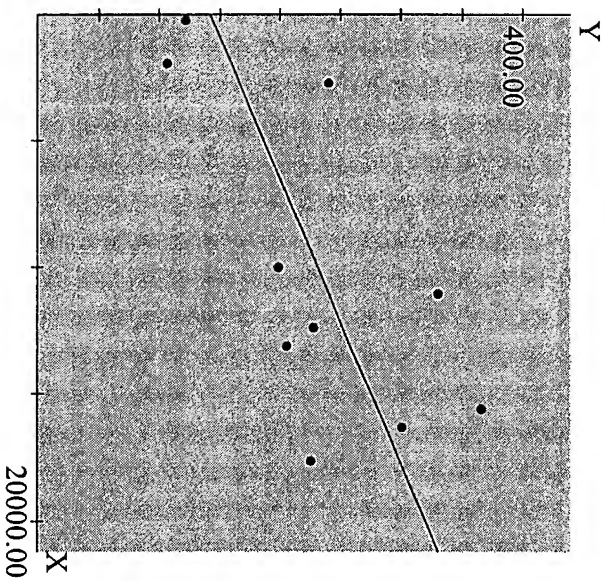
Int. Vasculature

$$y=0.005328x+86.228974$$

$$r=0.452836$$

$$p=0.1888$$

ONL Nucleus



Deep Vasculature

$$y=0.008873x+142.327$$

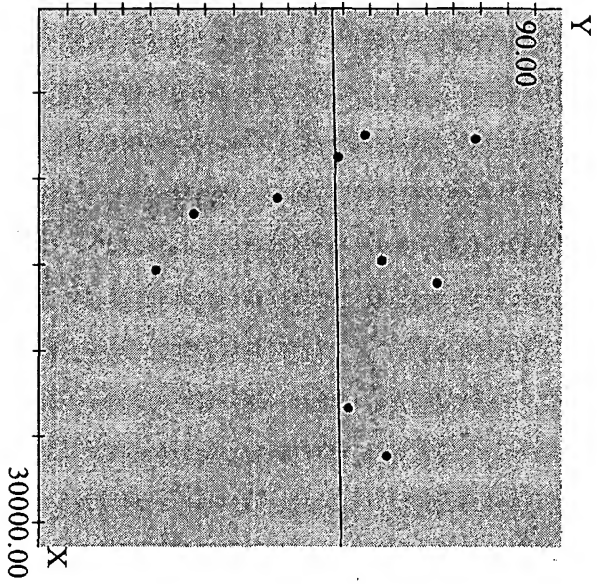
$$r=0.669651$$

$$p=0.0342$$

**FIG. 10**

## Simple Regression Analysis – 2M Control

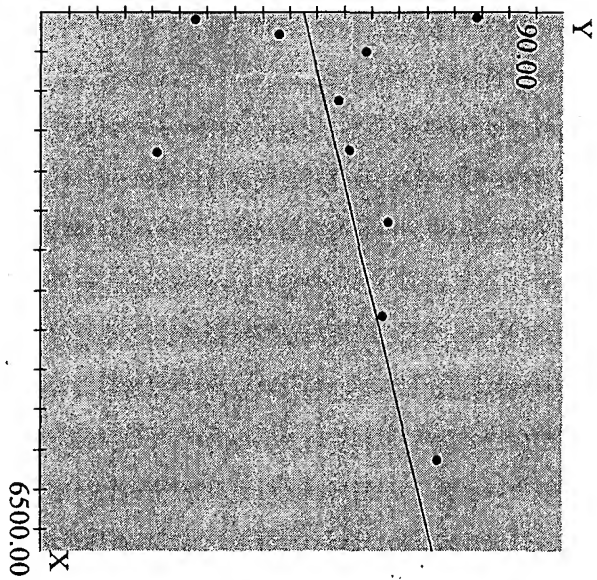
ONL Nucleus



Int. Vasculature

$$y = 0.000056x + 52.905069$$
$$r = 0.019418$$
$$p = 0.9575$$

ONL Nucleus



Deep Vasculature

$$y = 0.003517x + 47.465646$$
$$r = 0.349191$$
$$p = 0.3227$$

**FIG. 11**

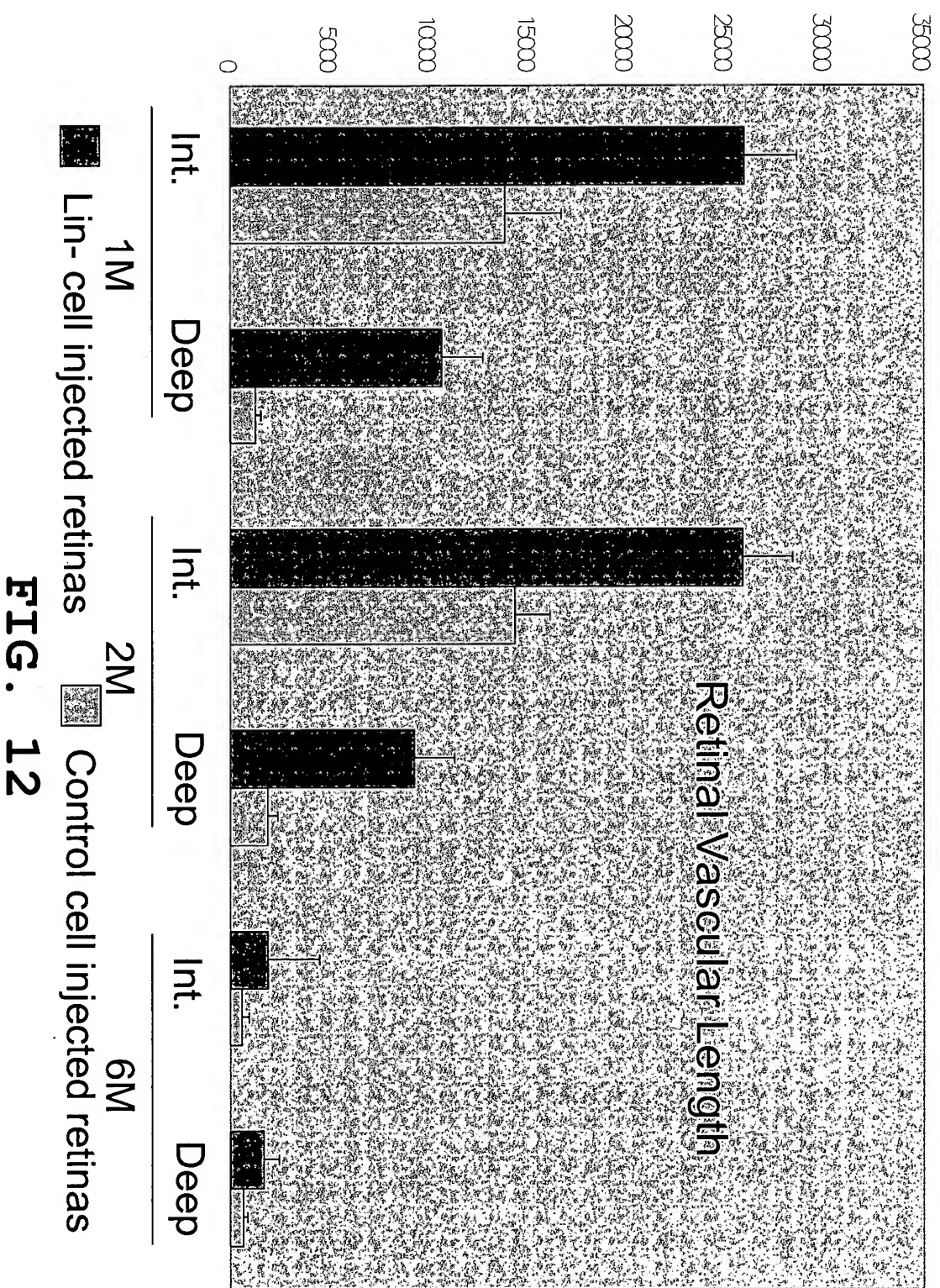
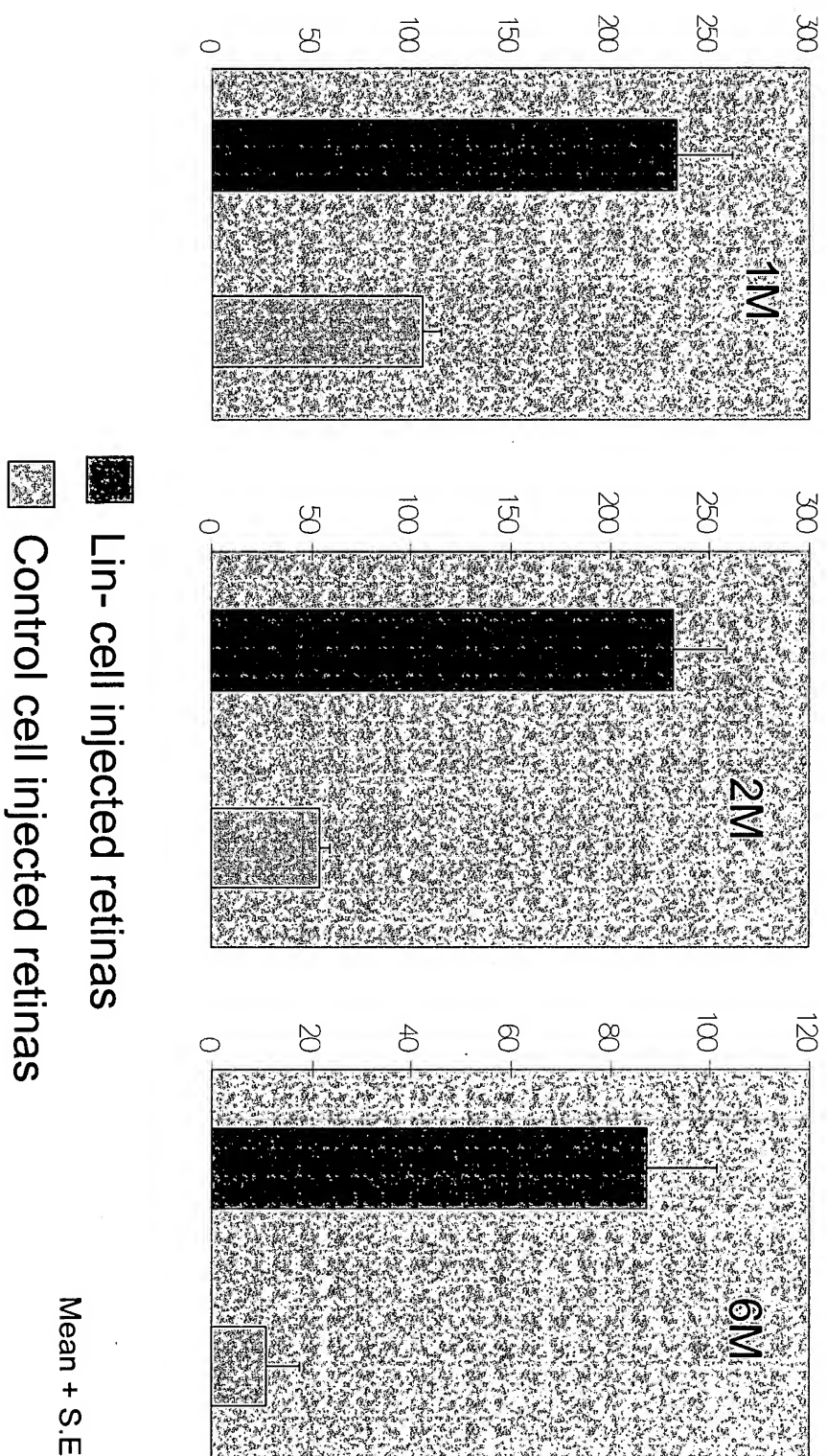


FIG. 12



# Number of Nuclei in ONL



**FIG. 13**



# Number of Nuclei in ONL

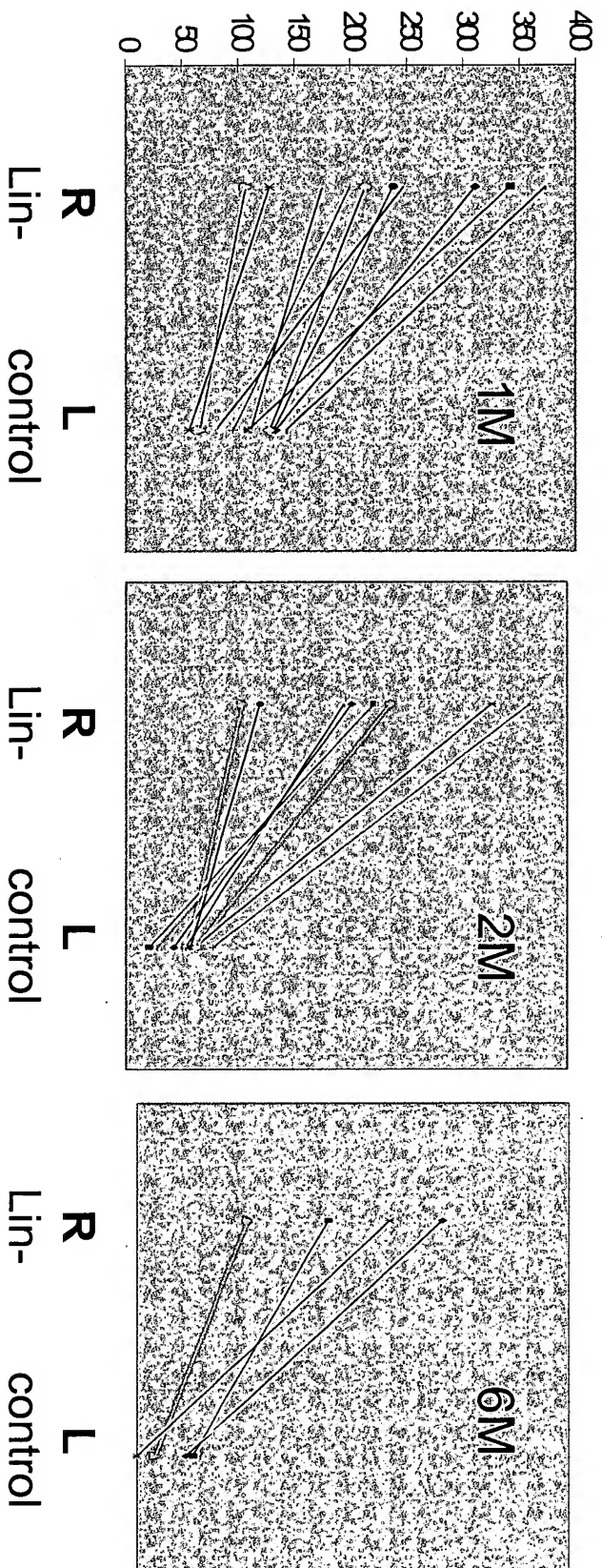


FIG. 14